

CLAIMS

What is claimed is:

1. A fibrous reinforcement for use in making composite items that comprises:
 - a) a fibrous support having a surface; and
 - b) a compound comprising:
 - i) a resin component comprising one or more thermosetting prepolymers having a softening temperature of 150°C or lower and/or one or more thermoplastic polymers with a glass transition temperature lower than 300°C; and
 - ii) an inorganic phosphorus compound wherein the treatment ratio for the fibrous support with said inorganic phosphorus compound falls within the range of 2%-20% by weight.
2. A fibrous reinforcement according to claim 1 wherein said compound is located throughout said fibrous support.
3. A fibrous reinforcement according to claim 1 wherein said compound is located on the surface of said fibrous support.
4. A fibrous reinforcement according to claim 1 wherein said compound comprises about 20%-60% by weight of said resin component and about 80%-40% by weight of inorganic phosphorus compound.
5. A fibrous reinforcement according to claim 1 wherein said thermosetting polymer has a softening temperature of between 50 and 100°C.
6. A fibrous reinforcement according to claim 1 wherein said thermoplastic polymer has a glass transition temperature of between 50 and 200°C.
7. A fibrous reinforcement according to claim 1 wherein said inorganic phosphorous is red phosphorous.

8. A fibrous reinforcement according to claim 1 wherein said thermosetting prepolymer is selected from the group consisting of bismaleimide resins, cyanate resins, epoxy resins and mixtures thereof.

9. A fibrous reinforcement according to claim 1 wherein said thermoplastic polymer is selected from the group consisting of polyimides, polyether imides, polyether sulfones, polysulfones, polyether ketones, polyether ether ketones, polyamides and polyamide imides.

10. A process for fabricating a fibrous reinforcement comprising a fibrous support, said process comprising the steps of:

a) providing a mixture comprising:

i) about 20%-60% by weight of a resin component comprising at least one thermosetting prepolymer having a softening temperature of 150°C or lower and at least one thermoplastic polymer having a glass transition temperature lower than 300°C; and

ii) about 80%-40% by weight of an inorganic phosphorus compounds;

b) providing a fibrous support having a surface; and

c) treating said fibrous support with said mixture to provide a treated support wherein the treatment ratio for the fibrous support with said inorganic phosphorus compound falls within the range of 2%-20% by weight.

11. A process according to claim 10 wherein step a) comprises providing said mixture in pulverulent form and wherein step c) comprises applying said pulverulent form of said mixture to said fibrous support to form a powdered support and wherein said process includes the additional step of thermally fusing said mixture in said pulverulent form with said fibrous support.

12. A process according to claim 10 wherein said thermosetting polymer has a softening temperature of between 50 and 100°C.

13. A process according to claim 10 wherein said thermoplastic polymer has a glass transition temperature of between 50 and 200°C.

14. A process according to claim 10 wherein said inorganic phosphorous is red phosphorous.

15. A process according to claim 10 wherein step a) comprises providing a mixture wherein said thermosetting prepolymer(s) and/or thermoplastic polymer(s) are dispersed in water and said inorganic phosphorus compound(s) is dispersed in water to provide a water dispersion of said mixture and wherein step c) comprises immersing said fibrous support in said water dispersion of said mixture.

16. A process according to one of claim 10 wherein said thermosetting prepolymer is selected from the group consisting of bismaleimide resins, cyanate resins, epoxy resins and mixtures thereof.

17. A process according to claim 10 wherein said thermoplastic polymer is selected from the group consisting of polyimides, polyether imides, polyether sulfones, polysulfones, polyether ketones, polyether ether ketones, polyamides and polyamide imides.